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ABSTRACT

Vocational interests of a hospital affiliated outpatient sample with epilepsy (N=71) were examined using the Strong Campbell Interest Inventory. Ss were categorized to examine effects of severity of seizure type, age of seizure onset, and sex. As a group, vocational interest scores on the General Occupational Theme Scales were not greatly different from normals. Results indicated that Ss with major motor seizures and males with early seizure onset showed less scientific interest, and that Ss with major motor seizures also indicated less academic interest than normals. The more impaired males appeared to be "at risk" for having their general interests restricted and in being less confortable in academic settings. Findings suggested that "at risk" males may benefit from specific interventions such as supportive counseling. Explorative, "hands on" activities in vocational education courses and in household domestic chores should be encouraged. In comparing interests, future studies should further examine the influence of duration and degree of disablement as critical variables affecting vocational interests. (Author/CL)

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ASSESSING THE VOCATIONAL INTERESTS OF THOSE WITH EPILEPSY

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Abstract

Vocational interests of a hospital affiliated outpatient sample with epilepsy (n = 71) were examined, utilizing the Strong-Campbell Interest Inventory. The patient sample was categorized to examine the effects of severity of seizure type, age of seizure onset, and sex. As a group, vocational interest scores on the General Occupational Theme Scales were not greatly different from normals. A summary of the statistically robust differences ($p < .01$) indicate: major motor seizure and early seizure onset males show less scientific interests and, major motors also indicated less academic interests than normals. These more impaired males appear to be "at risk" in having their general interests restricted and in being less confortable in academic settings. Findings suggest that "at risk" males may benefit from specific interventions such as supportive counseling. Explorative types of "hands on" activities in school vocational education courses and in household domestic chores should be encouraged. In comparing interests, future studies should further examine the influence of duration and degree of disablement as critical variables affecting vocational interests.

It has generally been assumed that the vocational interests of those with disabilities are similar to the nondisabled. Vocational interest inventories, such as the Strong-Campbell (Campbell, 1974), are traditionally used in rehabilitation agency and medical settings throughout the country in counseling the disabled. Rohe (1980) attempted to assess vocational interest change as a function of traumatic injury. He found no substantial changes in interests among a sample of males following spinal cord injury.

The present study focused on the vocational interests of an epilepsy center outpatient group. Epilepsy is a very unique type of disability for this type of study inasmuch as it is more developmental in nature than many other disabilities, is often "invisible" except during seizure events, and can be heterogeneous due to the diversity of type of seizure being experienced by the individual. The Strong-Campbell, T325-Merged Form (Campbell, 1974), was used in this study and the following questions posed in relation to the epilepsy outpatient sample:

1) Do the vocational interests of men and women with epilepsy differ significantly from the Strong-Campbell normative groups?

2) Do the vocational interests of those with epilepsy differ from normative group samples as a function of age of seizure onset?

3) Do the vocational interests of those with epilepsy differ from the normative group samples as a function of epilepsy seizure type?

This study, therefore, examines developmental and severity (of seizure type) aspects of the disability in relation to influencing interests. Whereas sudden traumatic disability may not affect interests because these interests have already been established through the "normal" developmental process. If all or some of these differences can be established, there are definite implications for psychologists and rehabilitation professionals working with chronic disability populations.

Methods

The Strong-Campbell Vocational Interest Inventory, T325-Merged Form (Campbell, 1974), was administered to 71 consecutive clients (47 males, 24 females) seeking vocational guidance at the University of Washington Regional Epilepsy Center. These were clients for whom community college or college considerations were generally appropriate based upon their assessed aptitudes.

For purposes of this study, nine scales were selected for examination on the Strong-Campbell: the six general occupational theme scale scores (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional general theme scores), two special scales - Academic Orientation and occupational Introversion-Extroversion, and one of the basic interest scales, the Adventure scale. The six general occupational scales were chosen because their items more broadly reflect the range of vocational interests, while the final three scales would appear to be the type of scale responses that might be particularly sensitive to disability effects.

The general occupational theme scales consist of 20 items each, are composed of like responses, and were chosen based upon their internal consistency and relative correlations with other scales (Campbell, 1974). They are based upon Holland's (1959, 1965, 1973) earlier work on personality types and work environments. Detailed accounts of the construction of these scales for men and women are reported in Campbell and Holland (1972) and Hansen and Johansson (1972).

The Academic Orientation and Introversion-Extroversion scales are two of the more valuable scales on the Strong-Campbell inventory and were retained from the original Strong Vocational Interest Blank. The Academic Orientation scale is really a measure of academic comfort and correlates only modestly with grade point (Campbell, 1974). The items are positively weighted and cover a wide range of academic topics, emphasizing the arts and sciences. Samples of

Ph.D.s were used as the normative sample with a conversion score formula that establishes a standard score mean of 60 and a standard deviation of 10. College graduates tend to score about 50 and college freshman about 40.

The original introversion-extroversion scale on the Strong Vocational Interest Blank was developed by comparing item responses to MMPI-defined extroverts with those of introverts among the University of Minnesota student body. The revised Strong-Campbell utilized many of the original items, but used three samples of each sex in developing a merged norm group for the scale. Raw scores are converted into a standard score distribution, where the most extroverted occupations average about 40 and the most introverted about 60.

The Adventure scale is a Strong-Campbell basic interest scale that really assesses propensity for physical risk taking. Although one of the more limited scales on the Strong-Campbell, consisting of only nine items, it was utilized to examine whether epilepsy seems to affect a physical risk-taking orientation.

The vocational interest scores of the 71 individuals with epilepsy were compared to the norm group (300 males and 300 females, respectively) on each of the previously described scales. The epilepsy sample was further categorized in order to examine the effects of seizure severity and age of seizure onset. Thirty seven individuals had the more severe major motor seizures (generalized tonic-clonic or partial seizures secondarily generalized) vs. 34 individuals with other seizure types. Thirty five individuals had an early seizure onset ($\leq$14 years) vs. 32 individuals with late seizure onset ($>$ 14 years)--four individuals could not be categorized on this variable. These categorizations enable comparisons on subsets of those with the disability.

Other salient characteristics of the epilepsy sample that could affect vocational interests were examined for each subset: age, education and full scale Wechsler IQ -- although complete information was not available for all the individuals involved in the study.

Data analysis included t tests on epilepsy sample mean interest scores for both male and female groups as compared to their respective norm groups. T tests on the epilepsy subgroups mean scores of concern as compared to male and female norm group scores were also conducted. The Bonferroni method (Cox, 1970) was used to adjust the significance level as multiple t tests were performed. Three way ANOVAs, examining the relative effects of sex, seizure type, and seizure onset on vocational interest, were also performed.

Results

Initial t tests did not indicate a great amount of interest differences between male and female epilepsy samples and the respective male and female norm groups. On these initial t tests, epilepsy males did, however, have lower Academic Orientation scores than the male norm group ($p < .01$), higher Introversion-Extroversion scores than the norm group (in introversion direction) ($p < .01$), and lower Investigative or scientifically-oriented interests than the male norm group ($p < .01$). Using the more conservative Bonferroni method to control for simultaneous t tests, only the lower Investigative interests remained significant at the $p < .01$ level--epilepsy mean = 44.9 vs 51.5 for normals. A three way analysis of variance to assess the effects of sex, seizure type, and seizure onset on epilepsy mean interest scores indicated significant interaction effects on the Investigative ($p < .01$) and Artistic ($p < .02$) general occupational theme scores, and on the Academic Orientation scale ($p < .01$). This finding supported the importance of examining subsets of the disability group and comparing subset means to the normative groups;

Table 1 presents an overview of all findings that were initially significant with the more robust findings, as established by the Bonferroni method indicated by an asterisk.

Insert Table 1 here

Initial findings relating to subsets of those with epilepsy indicate the following: 1) males with major motor seizures showed less interest in academic settings than normals or males with less severe seizures ($\underline{t}$ $p < .01$; $\underline{t}$, $p < .05$, respectively); 2) males with early seizure onset also indicated less Academic Orientation than normals ($\underline{t}$, $p < .01$); 3) early onset males showed less interest in Realistic ("hands-on", physically challenging) work activity than normals or late seizure onset males ($\underline{t}$, $p < .01$ and $\underline{t}$, $p < 05$, respectively); 4) major motor males and early onset males had lower scientific interests than the male norm group (t, $p < .01$); and 5) males with less severe seizures had more social service-oriented interests than those with major motor seizures

To control for multiple $\underline{t}$ tests the more conservative Bonferroni method for adjusting the sig. level was applied. The more robust findings indicate that the major motor males have a lower Academic Orientation and less Investigative interests than the male norm group ($\underline{t}$, $p < .01$), and early seizure onset males have a lower Investigative orientation than their respective norm group ($\underline{t}$, $p < .01$). The mean Academic Orientation score for males with major motor seizures was 32.1 vs 43.8 for the male norm group. The mean standard scores for major motor and early seizure onset males on the Investigative occupational theme were 42.6 and 41.9, respectively vs 51.5 for the male norm group.

In order to assess the potential influence of salient factors such as age, education, and intelligence on interest scores; these variables were described by subgroup . Table 2 presents an overview of this data.

Insert Table 2 here

Although there is some missing data, (approximately 20% of the sample's Wechsler IQ scores) there is nothing to suggest that these variables are influencing outcome in this study.

Discussion

Using the six general and three special scales that were chosen, on an overview the vocational interests of men and women with epilepsy do not appear radically different from normals. Further data analysis, categorizing respondents according to seizure type and age of onset, adds additional perspective to this study. When differences do occur it appears that male interests are more affected. Those with major motor or early seizure onset seem vulnerable to having their interest range narrowed (e.g., less scientific interests) or less of an academic orientation than normals. Although a number of findings did not reach significance using the more conservative post-hoc Bonferroni measure , the trend is consistent with male seizure patients having interests more affected, particularly those more severely impaired or having seizures for a longer period of time. Future studies should increase the female sample size to better determine whether seizure variables may be associated with interest trends for women.

It is consistent with prior studies that males appear to be more affected developmentally by epilepsy and have more adjustment difficulties in the school setting that can affect their academic orientation (Stores, 1978). Future

studies might further assess the influence of more severe and chronic disability on vocational interests. Replication of our findings, for example, would suggest that males with major motor or early onset seizures may benefit from specific interventions (supportive counseling, pro-social experiences, and involvement in "hands-on" or exploratory types of work tasks as a complement to schooling). This type of information could be brought to the attention of parents, school counseling departments and community activity leaders.

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Table 1

MALE SAMPLE: SIGNIFICANT T TESTS OF SCALE SCORES

SCALE	
AOR	All Epilepsy Males Lower Than Male Norm ($t = 2.9608$, $p < .01$, $v = 345$)
	Major Motor Males Lower Than Male Norm ($t = 3.7093^*$, $p < .01$, $v = 325$)
	Major Motor Males Lower Than Other Seizure Males ($t = 2.0249$, $p < .05$, $v = 45$)
	Early Onset Males Lower Than Male Norm (t 2.6736, $p < .01$, $v = 321$)
IE	All Epilepsy Males Higher Than Male Norm ($t = 2.2594$, $p < .05$, $v = 345$)
	Major Motor Males Higher Than Male Norm ($t = 2.4840$, $p < .05$, $v = 325$)
	Late Onset Males Higher Than Male Norm ($t = 2.1929$, $p < .05$, $v = 320$)
R	Early Onset Males Lower than Male Norm ($t = 2.6749$, $p < .01$, $v = 321$)
	Early Onset Males Lower Than Late Onset Males ($t = 2.2218$, $p < .05$, $v = 42$)
I	All Epilepsy Males Lower Than Male Norm ($t = 4.0546^*$, $p < .01$, $v = 344$)
	Major Motor Males Lower Than Male Norm ($t = 4.4293^*$, $p < .01$, $v = 325$)
	Early Onset Males Lower Than Male Norm ($t = 4.3729^*$, $p < .01$, $v = 321$)
S	Other Seizure Males Higher than Major Motor Males ($t = 2.0936$, $p < .05$, $v = 46$)

*Significant by Bonferroni Method for Simultaneous Tests at $\alpha = .01$

Scale Coding: AOR = Academic Orientation; IE = Introversion-Extroversion; R = Realistic; I = Investigative; S = Social

Table 2

SAMPLE CHARACTERISTICS

		EDUCATION		AGE		I.Q.	
		MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
MM	MEAN	12.7	13.3	26.4	27.8	101.1	97.2
	N	26	10	27	11	22	9
OS	MEAN	13.7	12.9	30.6	26.9	98.3	98.4
	N	20	12	20	13	17	9
LO	MEAN	13.0	14.4	28.8	32.4	104.1	99.1
	N	20	10	22	10	15	7
EO	MEAN	13.3	11.9	27.7	23.1	98.5	94.7
	N	23	9	23	12	20	9

MM = MAJOR MOTOR
OS = OTHER SEIZURES
LO = LATE ONSET
EO = EARLY ONSET